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# Designing for the Unknown Learner

Hamish Macleod, Jeff Haywood, Amy Woodgate and Christine Sinclair

**Abstract:** University teachers are faced with the problem of “knowing” their learners when teaching on a MOOC. This paper explores what the University of Edinburgh has come to know about its recent MOOC participants, highlighting one particular course described by some participants as “a cMOOC on an xMOOC platform”. The paper draws attention to barriers and enablers from co-existent understandings and expectations of course design, and from an abundance of highly-qualified participants. Demographic data suggest areas worthy of further exploration. Characteristics of people who claim to have found the MOOC a positive experience are compared with those who have not. Mixed messages about teacher presence may have implications that go beyond MOOCs. The authors contemplate whether MOOCs engender a “cohort effect”, or whether the participant group should better be thought of as a single massive multivocal entity.

## Introduction

“Know your learner” is a popular exhortation in course design manuals (see for example, Biggs & Tang, 2011). It emerges particularly from a constructivist view of learning: a perspective that recognises that learners bring existing knowledge to their new educational experience and actively build on this to construct their new learning. Constructivist approaches are particularly associated with a technology-supported learning environment (Selwyn, 2011). When that environment supports many thousands of participants, however, questions arise about how well the learner can be “known”. The authors of this paper espouse a social constructivist perspective and we explore how this was tested during a recent experience of teaching on a MOOC, while watching the experience of colleagues working on parallel but quite differently conceived and constructed MOOCs.

Course design is inevitably influenced by the designers’ underpinning values and beliefs about learning (Toohey, 1999). These may engage different focuses: for example, disciplinary content, student performance, reasoning, knowledge construction, experience, inquiry or social justice. As there may be many different people who have a stake in the design of any course, this can mean that there are tensions between these differing perspectives. The constructivist perspective might be distinguished from a more traditional instructionist philosophy of course design where the curricular content is “transmitted” from the teacher to the learner. Online, instructionist courses will emphasise carefully structured content and frequent testing of learners to check that the content has been absorbed and retained. It might be performance driven, with an emphasis on very tightly worded learning outcomes or behavioural objectives.

The focus for the constructivist is rather on the nature and needs of the learner, emphasising knowledge construction and accommodating new learning with existing knowledge. Outcomes are then more loosely defined, if

at all. The course designer’s job is to create appropriate tasks to set before the learner; the role of the teacher is as an “orchestrator of experience” (Caine & Caine, 1994). Further, the sociocultural elaboration of constructivism suggests that this active learning is best conducted within a social context, in which learners work together to explore their developing understanding, through the tutorial engagement of teacher and student, or in an ongoing ballet of reciprocal peer tutoring, in which the learner is supported by a peer or colleague more knowledgeable in the immediate epistemological domain. Author and online activist Cory Doctorow famously and succinctly sums up this pattern of experience: Content is not king. Conversation is king. Content is just what we talk about.

This paper draws on some conversations among MOOC participants, their teachers and the public to explore how those participants are constructing their understandings of the MOOC itself. It considers how teachers and course designers attempt to get to know their learners at scale. This is set in the context of a University supported initiative, enabling us to draw insight from not one but six very different courses, led by academics from across the University of Edinburgh’s three Colleges. We explore what we know about learners who chose to participate in MOOCs at the University of Edinburgh – who they are, why they did a MOOC and what they thought of it. We particularly highlight one of these six courses – E-learning and Digital Cultures – where the tensions between a social constructivist perspective and an instructionist-inspired platform have had an impact on both design and delivery of the course. We ask what was distinctive about the participants on this course and ultimately question whether the learners we have started to get to know are similar to those who are likely to come later – and indeed whether they were the students for whom the course was originally designed. As educators, we are having to revisit our own perspectives on course design to take account of this new environment for our work: our first cohort of students has been doing this as well.

## Competing models of course design

The idea of the MOOC emerged as a response to the power of networked connectivity as an engine to drive highly motivated, personally relevant and socially situated learning. While this shares some of the precepts of social constructivism, there are those who argue that a new paradigm is required for thinking about learning (and therefore course design) for the 21st century (Siemens, 2005). The theory of connectivism espoused and practised by George Siemens and Stephen Downes in the initial phase of MOOCs has been contrasted with the model of teaching exposed through the burgeoning MOOC offerings coming from organizations such as Coursera, Udacity and EdX. Certainly on the surface these appear to be rather instructionist in their conceptualization. Although liberal and inclusive in intent (often promoted as addressing global problems related to lack of access to educational opportunity), their combination of curation of resources and administration of objective testing presents a very different picture of the potential of the online, the open, and the massive from that of the original MOOCs. This has led George Siemens (2012) to coin the distinction between the original cMOOC (connectivist) and the xMOOC (continuing a pattern started by EdX with a more traditional focus on “knowledge duplication”).

Thus, although MOOCs are just a few years old, by 2012 there were already many competing pedagogical approaches underpinning their course design. This opened up scope for confusion in terms of expectations and norms in relation to MOOCs. When they signed up to run six distinctive MOOCs through Coursera, managers, teachers and administrators at the University of Edinburgh discovered that there were distinctive participant expectations of how courses would operate. These expectations came not only from previous experiences of MOOCs but also from previous experiences of being a student in more conventional academic settings. In addition, the Coursera platform encapsulated some of the xMOOC practices in the affordances it provided for materials and activities. While very open to new ideas, Coursera were clear about their expectations of professional-level video recordings (usually very content-based), objective computer-marked tests and peer-assessed assignments.

The University of Edinburgh’s report on its first run of MOOCs (MOOCs@Edinburgh Group, 2013) draws attention to the different approaches to course design and structure adopted by the experienced teams: two from each of the University’s three Colleges. Table 1 is taken from this report and illustrates considerable variation; the E-learning column stands out as particularly different because of the novel curriculum design of the E-learning and Digital Cultures MOOC. Rather than video lectures, the team curated, introduced and questioned freely-available short films and academic literature to form the content of the course.

Table 1: Comparison of course structures employed across Edinburgh MOOCs

Course structure	Equine Nutrition	AI Planning	Astrobiology	E-learning*	Critical Thinking	Philosophy
Number of academics	1	2	1	5	5	7
Number of teaching assistants	4	3 (+ 20 Community TAs)	2		2	4
Total team	5	6	3	5	7	11
Length of course (weeks)	5	5	5	5	5	7
Total number of videos	14	80	32		15	36
Total length of videos (minutes)	211	674	326		109	239
Average length (minutes)	15	8	10		7	7

\*E-learning & Digital Cultures used a novel curriculum design.  
Source: MOOCs@Edinburgh Group, 2013, p.11

Some experimental use of media and activities occurred across the six MOOCs, but the team for E-Learning and Digital Cultures (soon abbreviated to EDCMOOC) extended the scope of their design well beyond the Coursera Platform. By using blogs, Twitter, Google hangouts and other social media, the team encouraged connection among participants in ways more in keeping with a cMOOC approach. Indeed, the participants connected themselves – and then reported that EDC was a cMOOC on an xMOOC platform: see Sara Roegiers’ blog: <http://sararoe.wordpress.com/2013/02/27/on-how-edc-mooc-did-a-cmooc-on-coursera/>

## Who comes first to an “open” course?

Sara’s blog itself provides an example of how the work extended beyond the Coursera platform, and also points to the fact that many of the participants of the first run of EDCMOOC were students and educators. Though the course was aimed at people interested in education as well as digital culture, it was designed to target a first level undergraduate group. However, an initial survey by the University of Edinburgh of those who had signed up for the MOOCs indicated that 61 per cent of participants on EDCMOOC had postgraduate degrees and 60 per cent were employed in education. Across the six MOOCs, education was an area of employment for just 17 per cent of participants and those with postgraduate degrees were just 40 per cent, though this latter is still much higher than the rhetoric about MOOCs might suggest.

The educational focus of EDCMOOC certainly meant that teachers were attracted who were themselves already engaged in or contemplating MOOC activity. A number of participants reported in blogs and forums that they were not “typical” learners as they were just looking in to find out what all the fuss was about. There was much existing knowledge about the topics presented and even the activities involved were not really new to them. While the openness of a MOOC means that the university does not exclude participants on the basis of low previous academic achievement or experience, it also cannot exclude participants who have the benefits of high levels of previous academic experience. This raises the question: is it

possible to build a learning environment in which all levels of previous experience can profitably and creatively interact? It could be a marvellous opportunity for reciprocal support and benefit.

It is important to acknowledge, however, that at this early stage we do not know how typical these patterns of participation are. It may well be that those who come first to an open course turn out to be very different from those who come later.

## Issues raised by demographics of participants

The University of Edinburgh's participant survey and exit survey of people who had signed up to its six initial MOOCs brought out a number of important issues, including: educational achievement, employment, age profile, nationality, previous experience of MOOCs. The Coursera MOOCs of course have their "home" in the United States, and it is no surprise that the US was the top country of residence by a long way, at 28 per cent. The UK was second at 11 per cent. However, it was still the case that the majority of participants were non-US: a thought-provoking observation made to some members of the EDCMOOC team during a subsequent review activity. There was also a lot of variation across the MOOCs. An interesting feature is that AI Planning had only 16.7 per cent from the USA and 4.2 per cent from the UK. Although still not large, this course recruited a larger proportion from China (1.3 per cent).

The low recruitment from China is also reflected in online distance courses at the University of Edinburgh. While China is second only to Scotland in recruitment to campus-based Masters programmes at Edinburgh (Scotland 1419, China 1022), when it comes to online Masters the figures are starkly different (Scotland 243, China 4). This does suggest an issue worthy of further exploration.

Care needs to be taken over drawing implications from the demographic statistics as many questions can be asked about what is not there. For instance, very few respondents to the Edinburgh survey said that they had "never logged onto the course once live" (MOOCs@Edinburgh Group, 2013) and yet we know that only 40% of those who enrolled accessed the sites in the first week. Those who never accessed the site then become a very large proportion that we know little about.

While the above also suggests caution in claims about learner satisfaction, it is perhaps reassuring to know that 98 per cent of exit survey respondents indicated that "they felt they got out of the course(s) what they wanted". What they wanted was mainly to learn new subject matter and to find out about MOOCs and online learning. The MOOCs@Edinburgh Group report concludes that: "It is probably reasonable to view these MOOC learners as

more akin to lifelong learning students in traditional universities than to students on degree programmes, which is a common comparison being made" (P.32).

## What kind of learners (dis)like MOOCs?

While the positive messages about MOOCs were generally reflected in the EDCMOOC, 7 per cent reported finding their overall experience "poor" (see Figure 1), which is possibly slightly higher (though still low) as compared with the other five Edinburgh MOOCs.

**Please rate your overall experience with EDCMOOC**

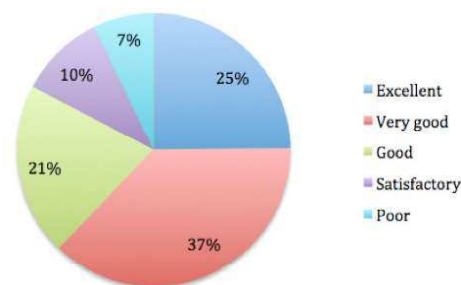


Figure 1. Overall experience.

The hybrid nature of EDCMOOC – (arguably) a connectivist MOOC on an xMOOC platform – brought out both strongly positive and strongly negative feelings, which were vocally expressed in the discussion forums, publicly accessible blogs and in the exit evaluation. It has been important for the team to be able to contextualize the more extreme comments by considering the satisfaction levels represented in Figure 1. Comments that praised EDCMOOC for taking a "connectivist" stance contrast with those that criticized lack of teacher presence and lack of structured content. While some participants loved the creativity and opportunities to follow their own interests, others derided the chaos and complexity that left them not knowing what they "should" be doing. Some welcomed the links with many other people; others immediately recommended ways of making the massive more manageable – "I'd love to be put in a group". The themes of digital utopia and dystopia – part of the object of study in the MOOC – were mirrored in analyses of the MOOC form as the future of education. In short, two broad frames of reference, the social constructivist and the instructionist, seemed to be in tension. Blogs and forum posts began to be populated with guidance for coping at scale, advocating either a more relaxed approach or a more structured one. Some of this advice is feeding into the development of MOOCs in general as the EDCMOOC has spilled out into public discussions, especially with a continuing Twitter presence at #edcMOOC.

The course design team have been reflecting on their experience, aided not only by this continuing stream of commentary but also by dialogues with colleagues who have invited us to speak at conferences. We've pondered the evidence that some students may have had a wonderful experience but did not actually "get" some of the key messages. We have been contemplating ways of supporting "lost" learners and having a greater presence at scale without compromising our view that digital education can be the privileged mode of learning, rather than a deficit-laden one. The MOOC as a structure is an opportunity to explore this precept further: getting to know what our unknown learner (dis)likes is part of this, but will not mean trying to please everyone in the long run. We conclude by suggesting an alternative way of viewing the seemingly insurmountable problem of differing perspectives (which of course are much more nuanced than the cMOOC and xMOOC binary leads us to believe).

## The unknown learner as a massive multivoiced entity

If the MOOC is simply a commodity, then strategies to maximize the "likes" over the "dislikes" will be sought. This tendency can be seen in the agonizing over retention figures on MOOCs. However, getting to know who has been on the EDCMOOC is bringing to light an important feature of the unknown learner (and, as so often happens with digital education) one that has always been there: when there are a lot of learners we will be unable to reduce them to one set of characteristics. As Knox (2013) advocates, it is now time to "embrace the massive". A member of the EDCMOOC team himself, Knox proposes that rather than trying to fix the problems caused by having so many unknown learners, we should explore and harness what we can do at scale.

Knox is not alone in seeking an alternative to treating the unknown learner as a single being. By avoiding binaries of the one and the many, or by seeking to resolve them, we are missing the opportunity to recognize the dynamic of the interanimating voices (Bakhtin, 1981) that have long awaited an opportunity to be fully heard. Writers who conceptualize digital engagements as participation in a global dialogue (for example Evans, 2008; Wegerif, 2013) offer frameworks that might support new ways of thinking about designing our MOOCs that do not rely on an individual simply receiving, constructing, connecting and performing – from, with, and to other individuals – but recognize our shared engagement in a new form of educational practice.

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